Tools for Building Clinical Questions:

A Fundamental Skill for Evidence-Based Medicine.

Evidenced-Based Medicine Seminar
CDR Jim Higgins
Family Physician

Objectives

- Describe how clinical questions arise.
- Define what makes a well-built clinical question.
- Describe how to formulate well-built clinical questions.
- Introduce the Educational Prescription/?? CAT’s.

The Steps to EBM

- **Convert** your information needs into answerable questions.
- **Track Down** the best available evidence to answer your questions.
- **Critically Appraise** the evidence from the scientific literature for its validity.
- **Apply** the results to your clinical practice.
- **Evaluate** the results.

The First Step in EBM

"preflight checklist"

Develop a well-built, answerable clinical question.

Asking the correct question.

How clinical questions arise:

- All patient encounters are opportunities to practice EBM.
- NEEDS for medical information develop with most clinical encounter.
- EBM begins and ends with the patient.
- Self-evident or not so self evident questions.

Gaps in our medical knowledge: a source of our clinical questions.

- Range from miniscule to complete lack of familiarity with the patient's need.
- Negative response
  - Anxiety, shame, burnout
- Positive response "Embrace our opportunity to learn"
  - Asking questions
  - Searching for answers
  - Channeling nervous energy into useful work

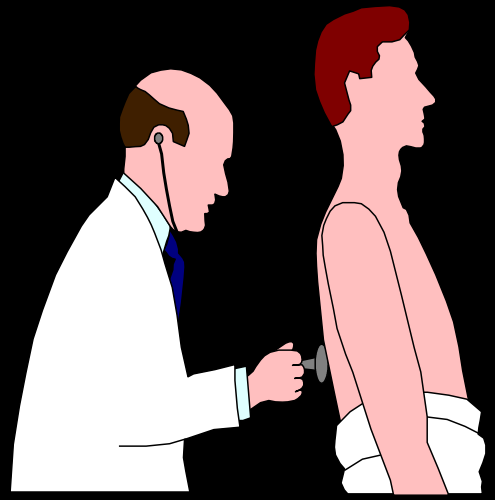
The formidable task: "Meeting our informational needs"

For most clinicians, the effort to ask well-built, answerable clinical questions,

then track down and critically appraise the best evidence are so formidable most of our information needs never get met.

Where clinical questions come from

- Therapy
- Diagnostic Test
- Clinical Findings
- Etiology
- Differential Diagnosis
- Prognosis
- Prevention
- Self-improvement



How you can recognize and formulate clinical questions as the occur:

- Focus on spontaneous questions.
- Listen for the “question behind the question”.
- Say questions out loud or writing them down.
- Know the domain of your question. (Dx, Tx, Px or Harm)

Building questions about your patient from your clinical encounter:

- A 40 y/o wf physician medical lawyer comes to your office with acute maxillary sinusitis. The intern tells you that he just read about treating this condition with a shorter 3-day course of antibiotics rather that the usual 10-14 days of tx.

- Should you try the shorter treatment regime with this patient?

Formulating a clinical question

- A relevant, focused, clinically important question that is likely to be answered
  - The inability to ask a focused and precise clinical question can be a major impediment to evidence-based practice
- This skill can be improved by:
    - breaking the question down into its component parts
    - classifying the question into a domain
      - therapy, diagnosis, prognosis, harm

4 elements of a well built clinical question

- The Patient group being addressed.
- The Intervention, whether a cause, a prognostic factor, or a treatment being considered.
- A Comparison intervention or gold standard when relevant.
- The clinical Outcome of interest.

Our patient with sinusitis; a well-built clinical question.

- In adults with a clinical presentation of acute maxillary sinusitis, would treatment with a 3-day course of Septra yield the same results as a 10-14 day course, with fewer adverse effects and cost?
- A well-built clinical question of therapy.

Clinical Questions - PICO

- ***P***atient - demographics and disease
- ***I***ntervention - risk factor, therapy, test
- ***C***omparison - gold standard, control
- ***O***utcome - disease, morbidity, mortality

The Patient or Problem

- Starting with your patient, ask how would I describe a group of patients similar to mine?

- Balance precision with brevity

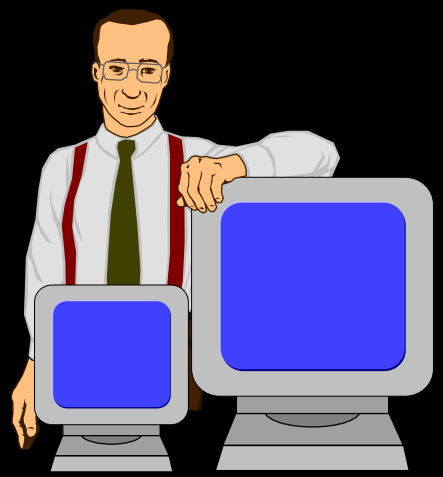
Intervention

- A cause, a prognostic factor, a treatment, or a potential harmful agents.
- Ask which main intervention am I considering.
- Be specific.

Comparison Intervention (if necessary)

- Ask what is the main alternative to compare with the intervention.

- Be specific.



Outcome(s)

- Ask what can I hope to accomplish.
- What could this exposure really affect?
- Be specific!

Examples of clinical questions

- Would imitrex (exposure) reduce the severity of headaches (outcome) in a young female with frequent attacks of migraine headaches (the patient)? A question of therapy.

- Would a PSA test (exposure) if performed in an asymptomatic middle age male (patient) decrease his risk of dying from prostate cancer (outcome)? A question of secondary prevention through early diagnosis.

- Does the occurrence of a febrile seizure (exposure) in a 7 month old infant (patient) increase the likelihood that the child will develop epilepsy (outcome)? A question of prognosis

Practical "PICO" Exercise

- Think of your last clinic or last patient that puzzled you……
- Use "PICO" to construct a well built answerable question.

Benefits of Well Built Clinical Questions

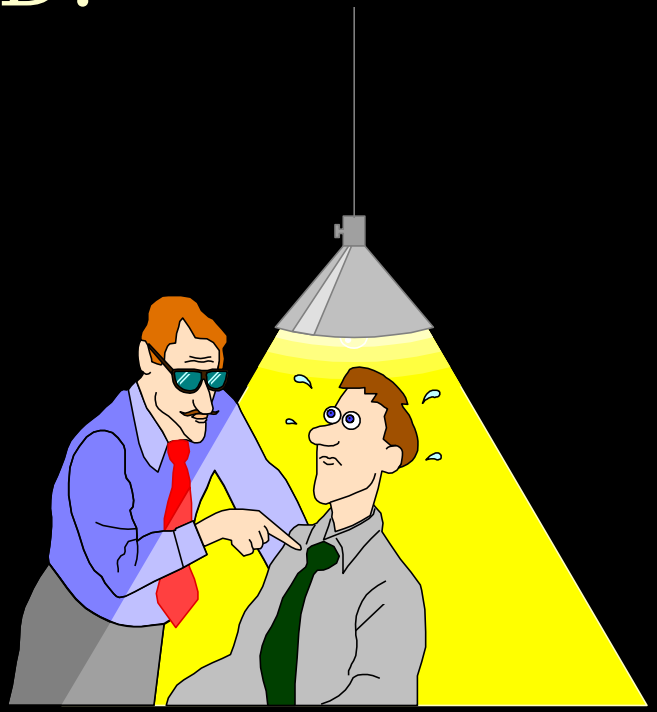
- The search for evidence is easier.
- Focusing the questions clarifies the target of the literature search.
- Focused question permits use of appropriate guides for assessing validity in screening the titles and abstracts of the articles.

“Look before you Leap”

- “Clinical Jazz”= Combine your individual clinical experience(art) with best external evidence(science).
- Balance: work v. relevance & validity of evidence.
- Decide with your patient how to put the evidence into practice.
- Prerequisite for above: a fundamental skill for EBM

Questions??

The END!



The next steps in EBM

- Convert information needs into answerable questions
- Track down, with maximum efficiency, the best evidence to answer questions
- Critically appraise the evidence for validity
- Apply the results in practice
- Evaluate performance

Educational Prescription (Rx)

- Good questions - backbone of practicing and teaching EBM
- Patients are the starting point for both
- Challenge for teachers of EBM - identify questions that are both patient-based and learner-centered.
- Focused clinical questions - an important aspect.
- Formulated a question; keep track of it; follow its progress to useful answer.

Educational Prescription (Rx)

- A way to keep track of your question
- Helps the teacher and learner in five ways:

1. It specifies the clinical problem that generated the question;
2. It states the question, in all of its key elements
3. It specifies who is responsible for answering the question;
4. It reminds everyone of the deadline for answering the question;
5. It reminds everyone of the steps of searching, critically appraising, and ultimately relating the answer back to the patient.

A Sample Educational Prescription

R_x Educational Prescription

Patients Name: Learner:

3(4)-part Clinical question

Target Disorder:

Intervention(+/-comparison):

Outcome:

Date and Place to be filled:

Presentations will cover

1. Search strategy;
2. Search results;
3. The validity of the evidence
4. The importance of this valid evidence;
5. Can this valid, important evidence be applied to your patient;
6. Your evaluation of this process.

Using Educational Prescriptions in Teaching EBM

- There are a number of ways to use these in teaching.
- Limited only by your imagination and opportunities you have for teaching.
- Incorporated into work rounds and attending/consulting rounds to morning report and noon conferences.
- Use them as part of your everyday routine.

Clinically Appraised Topics (CATS)

- A systematic method for evaluating research articles used for answering your well built clinical question.
- Developed for busy practitioners who need to answer questions quickly.
- Not the final word on a subject, but allows you to rapidly assess a research paper.

Clinically Appraised Topics (CATS)

- Provide the building blocks to allow for an assessment of the evidence obtained from an article.
- Assist in the critical appraisal and evaluating the clinical evidence for its validity.

Components of CATS

- Clinical Bottom Line
- Clinical Question
- Author, Date
- Description of the methodology and any bias
- Statistics
- Comments and Criticism
- References
- Expiration date

The Catmaker Software

- Developed at the NHS R&D Centre for EBM in Oxford, UK.
- Helps by carrying out important clinical calculations and their 95% CI.
- Stores the questions, the search strategies and the appraisal, and generates files that can be save and stored for others.

Problems with CATs

- Access to resources
- Initial time investment
- Initial skill-learning investment
- Allergies develop

What makes a clinical question well built?

- directly RELEVENT to the problem at hand.
- FOCUSED to facilitate searching for a clear precise answer.
- The question must well articulated for all 4 parts of its anatomy.